KVIS-ISB
Student Research Collaboration Program

Turning Science Students into Student Scientists

Min Medhisuwakul, Ph.D.

Kamnoetvidya Science Academy

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International School Bangkok

KVIS-ISB Student Research Collaboration Program

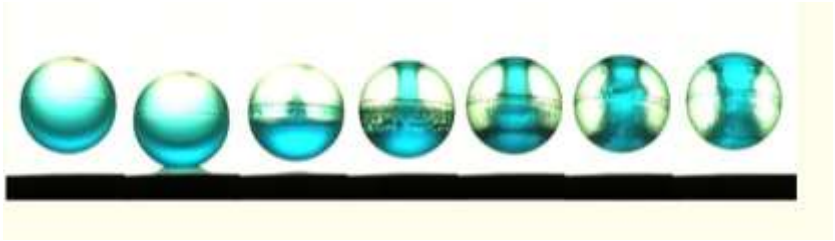
Prompilai Buasuwan, (2018) "Rethinking Thai higher education for Thailand 4.0", Asian Education and Development Studies, Vol. 7 Issue: 2, pp.157-173

Kamnoetvidya Science Academy

- Founded by PTT
- Nurture creative, innovative young scientists
- Based on Thai curriculum

Kamnoetvidya Science Academy

Well-equipped laboratories with instruments and research atmosphere

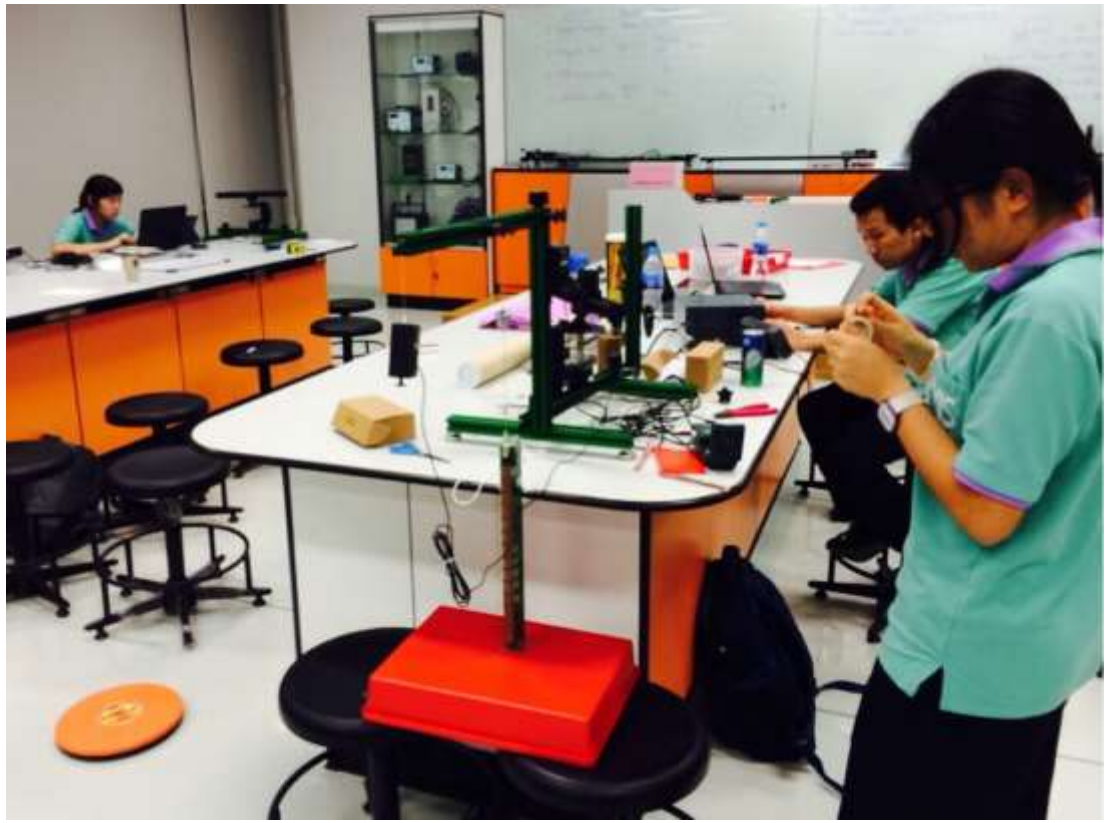


High-speed camera Infrared camera

Automated data collecting systems

Kamnoetvidya Science Academy

Original research in a cooperative working atmosphere



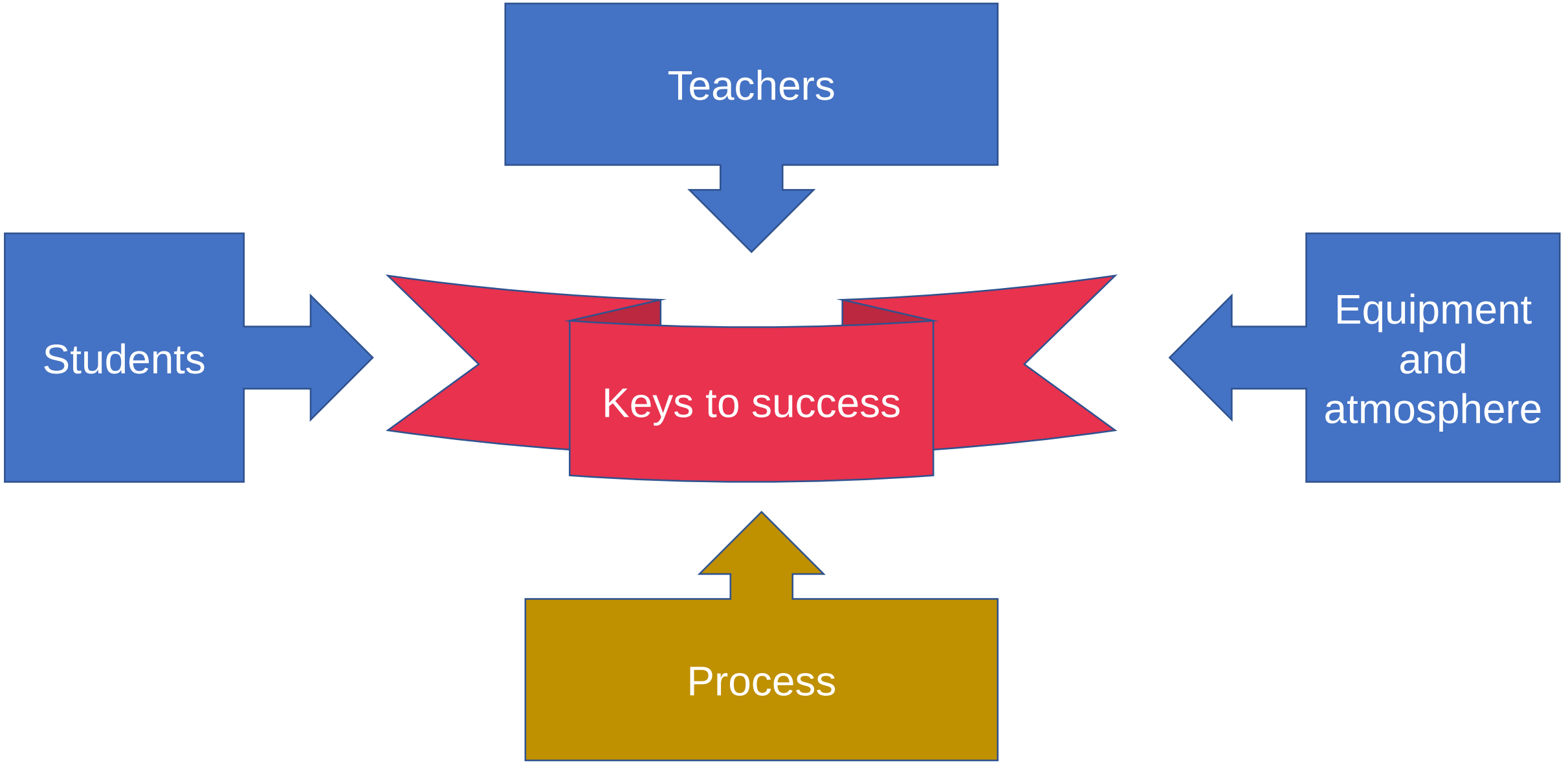
Kamnoetvidya Science Academy

Students encouraged to build apparatus for their research

Supporting facilities

- Machine shop
- Electronics
- Microcontroller

Kamnoetvidya Science Academy



International School Bangkok

Process of Science

Master Current Knowledge

Conduct Investigation

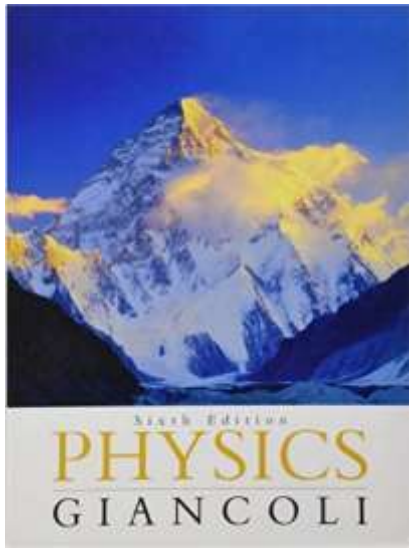
Create New Knowledge

Write Report

Publish

Master Current Knowledge

- Class discussion
- Text reading and homework
- Labs



Create New Knowledge

Process of Science

Master Current Knowledge

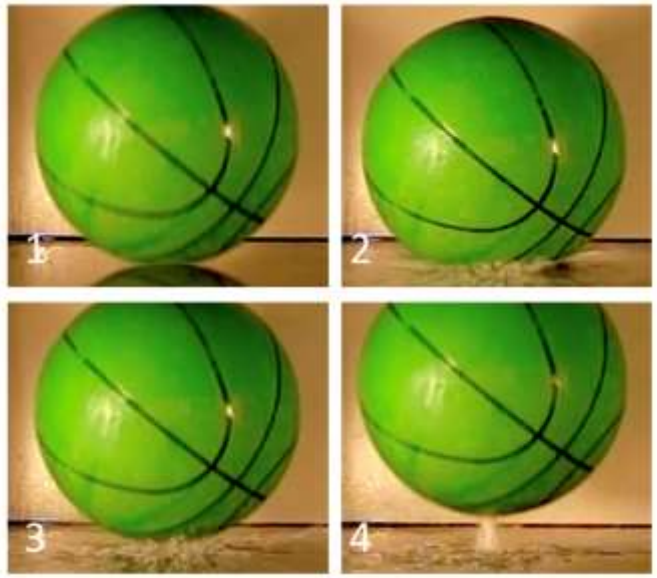
Conduct Investigation

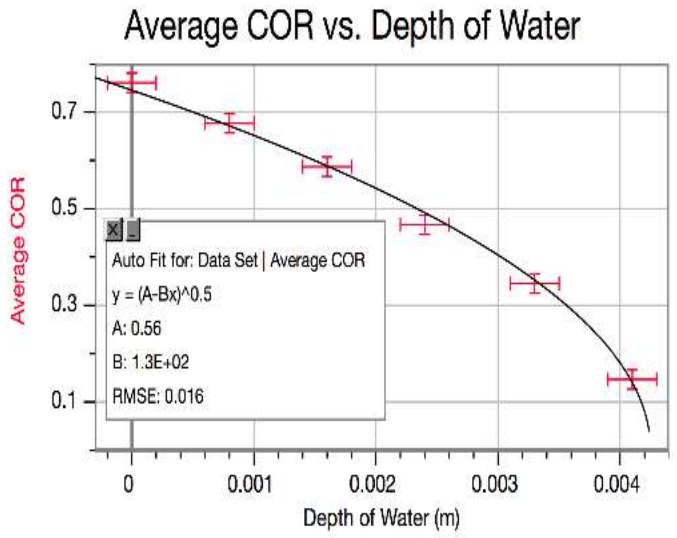
Create New Knowledge

Write Report

Publish

How does the depth of a puddle affect the bounce of a basketball?





Publish

Process of Science

Master Current Knowledge

Conduct Investigation

Create New Knowledge

Write Report

Publish

International Scholastic Journal of Science 9 (1) Jan-Dec, 2015 www.isjos.org

Bounce of a Basketball in a Puddle: Depth of Water and Coefficient of Restitution

Chankyu Han
International School Bangkok,

Abstract

A basketball was dropped into puddles with depths of water ranging from zero to 4 mm from a height of 1.1 m. to investigate the relationship between the depth of water in a puddle and the coefficient of restitution with measurements of the drop height and bounce height. It is shown that the coefficient of restitution has a square root relationship with the depth of the puddle. A "puddle constant" is defined and found for this drop height and this ball to be 830 kgm/s^2.

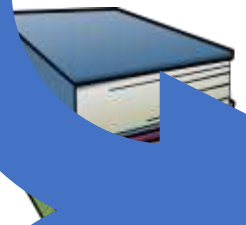
Keywords: basketball, water depth, coefficient of restitution

KVIS-ISB Student Research Collaboration Program

KVIS M4 Students

ISB Gr12 Students

Process of Science



aster Current Knowledge

Conduct Investigation

Create New Knowledge

Write Paper

Publish

KVIS-ISB Student Research Collaboration Program

Program Objectives

- Increase skills in conducting scientific research
- Collaborate with scientists from different backgrounds
- Gain confidence in ability to make scientific discoveries
- Experience the review and publishing process
- Improve scientific writing skills

KVIS-ISB Student Research Collaboration Program

PROGRAM TIMELINE

September | **October** | **November** | **December**

Sept 1-15

- Program participants selected
  - 5 groups
  - Each group: 2 M4 KVIS students & 2 Gr12 ISB students
- Groups introduced (Online)
- Research and develop possible Research Topics

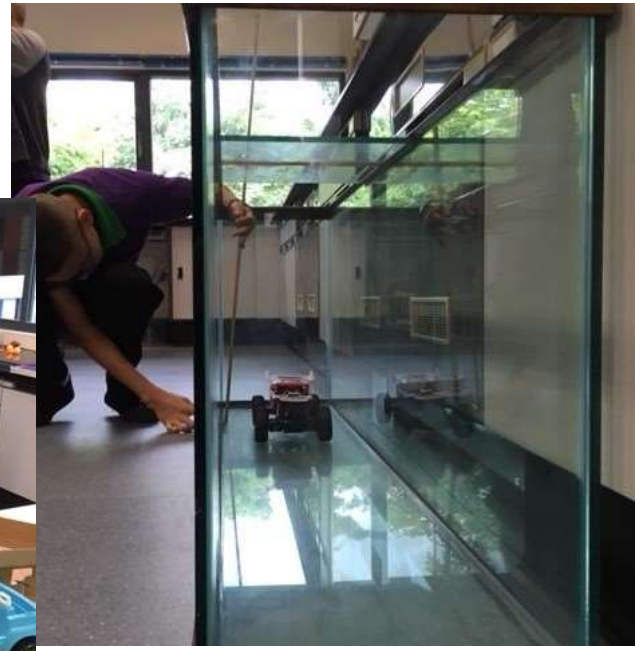
KVIS-ISB Student Research Collaboration Program

PROGRAM TIMELINE

September | **October** | **November** | **December**

Sept 16-17
Sat-Sun, 9-15h

- Research topics finalized and approved
- Experimental apparatus designed and tested
- Sample data collected and analyzed



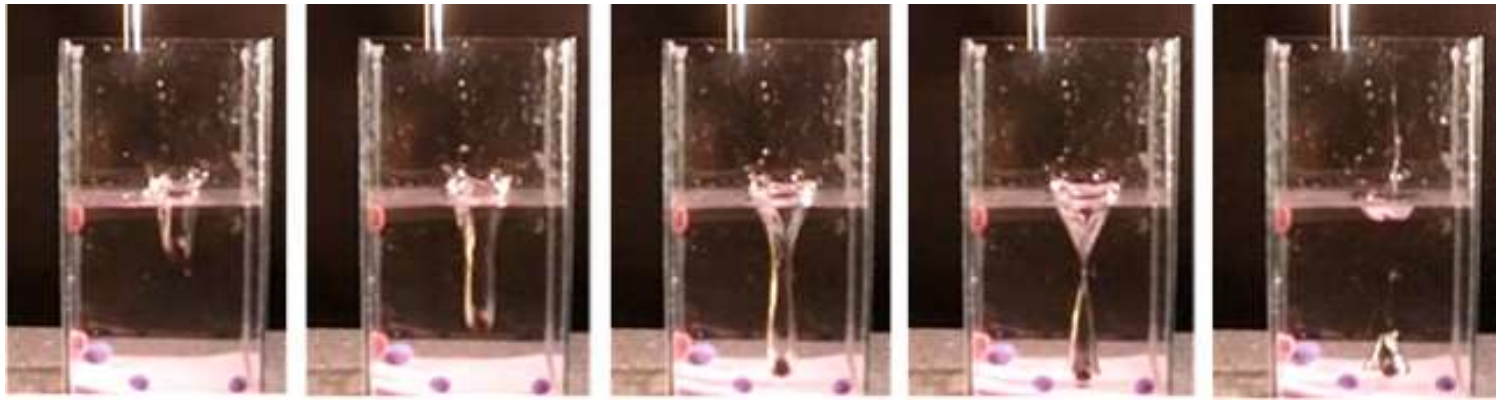
KVIS-ISB Student Research Collaboration Program

PROGRAM TIMELINE

September | **October** | **November** | **December**

Sept 23-24
Sat-Sun, 9-15h

- Data collection completed
- Initial data analysis
- Results compiled



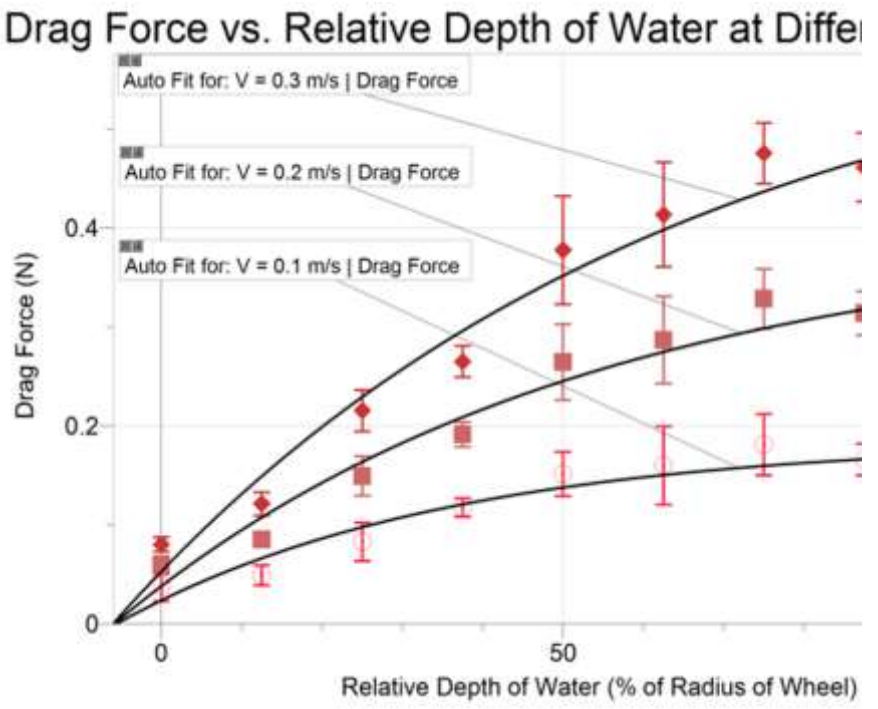
KVIS-ISB Student Research Collaboration Program

PROGRAM TIMELINE

September | **October** | **November** | **December**

Sept 25-Nov 17
Group work online

- Data analysis completed
- Theory and models developed and tested
- Results presentation developed



KVIS-ISB Student Research Collaboration Program

PROGRAM TIMELINE

September | October | November | December

Nov 18-19
Sat-Sun, 9-15h

- Analysis discussed with advisors
- Paper drafted and reviewed by advisors
- Paper submitted for Journal review

ıational Scholastic Journal of Science 11 (1) Jan-Dec, 2017 www.isjos.c

Paddle Angle and Ball Spin in Table Tennis

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2. Kamnoetvidya Science Academy, 999 Moo 1 Payupnai, Wangchan, Rayong 21210
Email: binvant.singh@gmail.com

Abstract

The relationship between the impact angle of a table tennis ball with respect to the paddle and angular velocity of the ball leaving the paddle was investigated. A table tennis ball was dropped onto a paddle

KVIS-ISB Student Research Collaboration Program

PROGRAM TIMELINE

September | October | November | December

Nov 20 Onward

- Authors received Reviewer feedback
- Authors of accepted papers worked with Journal Editor to address Reviewer suggestions
- Revised paper reviewed for final approval and publication.

KVIS-ISB Student Research Collaboration Program

Key Factors for Success

1. Participants experienced in the scientific process
2. Strong writing ability in the target language
3. Adequate equipment and supplies available
4. Institutional support

KVIS-ISB Student Research Collaboration Program

Future Plans

1. Improve and expand the SRC program to establish a culture of research and publication at KVIS
2. Establish SRC programs between KVIS and other schools
3. Establish *Thai Scholastic Journal of Science*
4. Work with schools directly to establish Student Research and Publishing Programs

Contact & Resources

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www.StudentScientists.org

- Copy of this Presentation
- Resources on establishing Student Research and Publishing Programs

www.ISJOS.org

- Website of the International Scholastic Journal of Science
- Contact: Editor@isjos.org

Thank You!

Questions or Comments?